gamma(gamma(2))

Assuming "gamma" is a math function

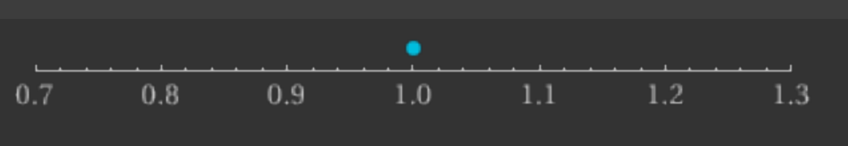
Input

$\Gamma(\Gamma(2))$

Result

1

Number line



Number name

one

Visual representation

•

Alternative representations

$$\Gamma(\Gamma(2)) = \frac{G(1+\Gamma(2))}{G(\Gamma(2))}$$

$$\Gamma(\Gamma(2)) = e^{-\log G(\Gamma(2))+\log G(1+\Gamma(2))}$$

$$\Gamma(\Gamma(2)) = (-1+\Gamma(2))!$$

$$\Gamma(\Gamma(2)) = \Gamma(\Gamma(2), 0)$$

$$\Gamma(\Gamma(2)) = (1)_{-1+\Gamma(2)}$$

$$\Gamma(\Gamma(2)) = e^{\log\Gamma(\Gamma(2))}$$

$$\Gamma(\Gamma(2)) = (-2+2\,\Gamma(2))!!\,2^{1/4\,(3+\cos(2\pi\Gamma(2))-4\,\Gamma(2))}\,\pi^{1/2\sin^2(\pi\Gamma(2))}$$

Less

Series representations

$$\Gamma(\Gamma(2)) = \sum_{k=0}^{\infty} \frac{(\Gamma(2)-z_0)^k\,\Gamma^{(k)}(z_0)}{k!} \quad \text{for } (z_0 \notin \mathbb{Z} \text{ or } z_0 > 0)$$

$$\Gamma(\Gamma(2)) \propto e^{-\Gamma(2)} \exp\left(\sum_{k=0}^{\infty} \frac{B_{2+2k}\,\Gamma(2)^{-1-2k}}{2+6k+4k^2}\right) \Gamma(2)^{-1/2+\Gamma(2)} \sqrt{2\pi} \quad \text{for } \infty \to 1$$

$$\Gamma(\Gamma(2)) \propto \frac{e^{-\Gamma(2)}\,\Gamma(2)^{-1/2+\Gamma(2)}\sqrt{2\pi}}{\exp\left(-\sum_{k=0}^{\infty} \frac{B_{2+2k}\,\Gamma(2)^{-1-2k}}{2+6k+4k^2}\right)} \quad \text{for } \infty \to 1$$

$$\Gamma(\Gamma(2)) \propto e^{-\Gamma(2)}\,\Gamma(2)^{-1/2+\Gamma(2)}\sqrt{2\pi} + e^{-\Gamma(2)}\,\Gamma(2)^{-1/2+\Gamma(2)}\sqrt{2\pi} \sum_{k=1}^{\infty}\sum_{j=1}^{2k} \frac{(-1)^j\,2^{-j-k}\,\Gamma(2)^{-k}\,\mathcal{D}_{2(j+k),j}}{(j+k)!}$$
$$\text{for } ((\infty \to 1 \text{ and } \mathcal{D}_{n,j} = (-1+n)((-2+n)\,\mathcal{D}_{-3+n,-1+j} + \mathcal{D}_{-1+n,j}) \text{ and } \mathcal{D}_{0,0} = 1 \text{ and } \mathcal{D}_{n,1} = (-1+n)! \text{ and } \mathcal{D}_{n,j} = 0) \text{ for } n \le -1+3j)$$

$$\Gamma(\Gamma(2)) = \frac{\pi}{\sum_{k=0}^{\infty} (\Gamma(2)-z_0)^k \sum_{j=0}^{k} \frac{(-1)^j\,\pi^{-j+k}\sin\left(\frac{1}{2}\pi(-j+k+2z_0)\right)\Gamma^{(j)}(1-z_0)}{j!\,(-j+k)!}}$$

$$\Gamma(\Gamma(2)) \propto 2^{-\lfloor(\pi+\arg(\Gamma(2)))/(2\pi)\rfloor}\,e^{-\Gamma(2)}\csc^{\lfloor(\pi+\arg(\Gamma(2)))/(2\pi)\rfloor}(\pi\,\Gamma(2)) \exp\left(\sum_{k=0}^{\infty}\frac{B_{2+2k}\,\Gamma(2)^{-1-2k}}{2+6k+4k^2}\right) \left(\exp\left(i\pi\left\lfloor\frac{\pi+\arg(\Gamma(2))}{2\pi}\right\rfloor\right)\Gamma(2)\right)^{-1/2+\Gamma(2)} \sqrt{2\pi} \quad \text{for } \infty \to 1$$

Less

Integral representations

$$\Gamma(\Gamma(2)) = \int_0^{\infty} e^{-t}\,t^{-1+\Gamma(2)}\,dt$$

$$\Gamma(\Gamma(2)) = \int_0^1 \log^{-1+\Gamma(2)}\left(\frac{1}{t}\right) dt$$

$$\Gamma(\Gamma(2)) = \exp\left(\int_0^1 \frac{-1+x^{\Gamma(2)}+\Gamma(2)-x\,\Gamma(2)}{(-1+x)\log(x)}\,dx\right)$$

$$\Gamma(\Gamma(2)) = \exp\left(-\gamma\,\Gamma(2) + \int_0^1 \frac{1-x^{\Gamma(2)}+\log\left(x^{\Gamma(2)}\right)}{\log(x)-x\log(x)}\,dx\right)$$

$$\Gamma(\Gamma(2)) = \int_1^{\infty} e^{-t}\,t^{-1+\Gamma(2)}\,dt + \sum_{k=0}^{\infty}\frac{(-1)^k}{k!\,(k+\Gamma(2))}$$

$$\Gamma(\Gamma(2)) = \frac{2i\pi}{\oint_{\mathcal{L}} e^t\,t^{-\Gamma(2)}\,dt}$$

$$\Gamma(\Gamma(2)) = \tilde{\infty} \oint_L e^{-t}\,t^{-1+\Gamma(2)}\,dt$$

$$\Gamma(\Gamma(2)) = \frac{2\pi}{i\oint_{\mathcal{L}} e^{-t}\,(-t)^{-\Gamma(2)}\,dt}$$

Less

Related Queries:

- use Simpson's rule x! from 1 to 3 with 3 intervals
- poles of Gamma(z)
- word frequency history for the word factorial
- some products containing Gamma(k)
- gamma(x) duplication formula